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ORIGINAL ARTICLES.

A CASE OF RHEUMATIC (?) IRITIS FOLLOWED BY ANTERIOR STRIATED KERATITIS, WITH STAINING OF DESCEMET'S MEMBRANE BY FLUORESCIN.*

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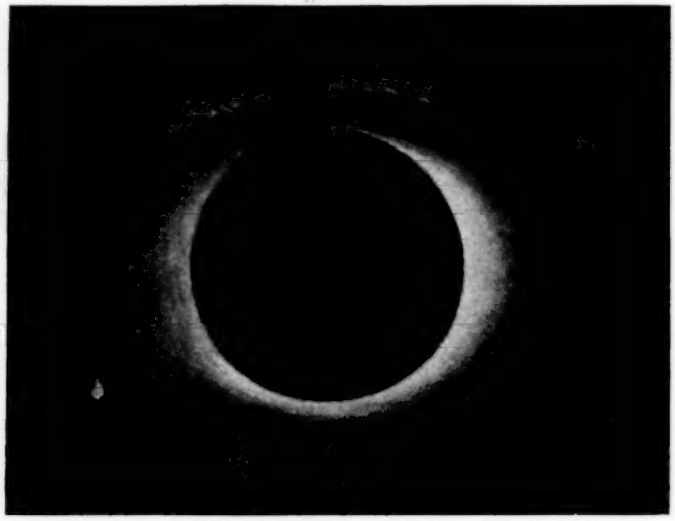
On February 13th, 1909, a man 56 years old came to me complaining of discomfort and diminution of vision in the right eye of 11 days duration. His previous history was as follows: The patient is subject to rheumatism, and denies having had syphilis. There is severe pain with ciliary tenderness and the pupil is filled with a fibrinous membrane. O. D. V=1/240; O. S. V=19/24. He was sent to St. Luke's Hospital and given calomel gr. 1/4 with aspirin gr. xv t.i.d.; also the aqueous solution of atropine and cocaine, followed by the solution of the same drugs in castor oil, was ordered instilled into the eye every hour. (I had already used both every thirty minutes for three hours in the office.) The patient was very much more comfortable on the following day and dionin was used daily thereafter in addition to the other treatment.

February 22nd. O. D. V=19/150. The patient began to visit the office every clear day and was making an uneventful recovery, when on March 2nd there appeared a parenchymatous keratitis with an epthelial abrasion similar to that from cocaine. This

*Reported at the meeting of the St. Louis Ophthalmological Society, May 10th, 1909.

was repeatedly examined with oblique illumination and a magnifying lens, until March 4th, when the epithelium was entirely restored. On that day I was examining the patient with the Marple electric ophthalmoscope. When I had finished I turned the light-tube directly on the cornea, as is my habit, thus using a very small direct pencil as an oblique illumination, which much diminishes the annoyance from reflexes which are usual with the ordinary method. I found throughout the lower half of the cornea short straight striations which were apparently beginning to push themselves in from the periphery towards the center. Under fluorescin, the epithelium appeared again intact. I then used the Meyrowitz transilluminator because of its stronger light, but could see nothing further. The membrane of Descemet was undoubtedly stained. On March 7th, when the striations were most perfect, I had the accompanying drawing made by Mr. Jones, who used the transilluminator. The picture was such an exact reproduction of the lesion that I did not have a suggestion to make as to modifications in the drawing.



March 9th. O. D. V. was 19/120, epithelium intact and the staining by fluorescin involved the lower half of the posterior surface of the cornea. The striations had entirely disappeared leaving a mild parenchymatous keratitis. Recovery was uneventful, and on March 19th, O. D. V. was 19/24, when the patient left to place himself again under the treatment of his home physician.

LOUIS BRAILLE AND THE INTELLECTUAL ACHIEVEMENTS OF THE BLIND.*

By Philip Skrainka, M.D.,

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A poor weaver of Saint-Just-les-Marais, a small market town in Picardy, was the father of two sons of whom France is justly proud. One was René Haüy, the discoverer of the geometrical law of crystallization; the other invented a method of instruction which rendered, in part, to the blind a definite position in the world from which their infirmity had excluded them. The latter, Valentin Haüy, had a singularly engaging disposition, naïve and unworldly; and even to-day, after the lapse of many years, when we read his works, his biography, his autographic letters which are still extant, he appears as a persistent and ingenious theorist with no capabilities of solving the simplest problems which involve a knowledge of management. Although he had the honor of founding the first institution for blind workers (artisans), he was never able to manage it properly. He has himself related in what circumstances the idea occurred to him to do for the blind what the abbé de l'Epée had done for the deafmutes. In 1784 he attended a concert given by a dozen blind men who, having their eyes concealed behind spectacles, were seated in front of desks upon which rested their music-books. Needless to say they tortured the airs, which they played, by overlooking two important matters—time and rhythm. Upon hearing this charivari, Haüy recalled that one day when he had given an alms to a blind person, the latter had said: "You thought you were giving me a sou, but instead you have given me half a crown." Thereupon he had concluded that the beings deprived of the sense of sight could easily acquire a delicacy of touch which would aid them in distinguishing objects almost at once. This was an observation that was known to everybody, but he drew from it this inference that if a blind person remained blind in the presence of a surface that was exactly plane, he could be made to see, so to speak, when there was placed under his hand a surface in relief. In other words, a printed letter of the alphabet is without significance to a blind person, but a raised letter offers him

*Read at the meeting of the St. Louis Ophthalmological Society, May 10th, 1909.

a new sense. The question which occurred to Haüy was,—why not have books printed with letters projecting above the surface for the use of persons deprived of sight? Instead of placing books before the eyes of the blind they should be placed under their fingers. This idea, though simple, had considerable ingenuity, and out of it arose a series of rational practices which gave shape to a new theory of novel instruction. The idea itself took hold of Valentin Haüy with extreme intensity, but the theory alone did not suffice; he wished to prove by practice that he was on the road of a real, fecund discovery. He immediately looked for his first pupil; naturally it was at the doors of the churches that he sought for his material. In truth, at this time, the blind without resources, being neither able to work nor to attend school, were compelled to appeal to public charity. They had only one profession—that of mendicancy. They almost all belonged to that vast corporation of which the council-board had its seat at the Quinze-Vingts, in the celebrated hospital that Saint Louis had not only founded but had considerably enlarged by the addition of buildings on a site known as Champ-Pourri. Ever since the origin of this establishment, there had been special criers who frequented the streets and solicited in high strident tones, commiseration of the passer-by on behalf of the work. The pensioners, the associates of the Quinze-Vingts, carried a money-box in the hand and on the left side of the breast a fleur de lis, which had been granted them by royal decree by Philip le Bel in 1312; they had the privilege of a charity box for their benefit in all the churches of France and, greatest privilege of all, they were allowed to bid for favors at all the churches in Paris. They were not tolerated at the holy water-basin, as occurs today; but on the other hand they had the unmolested right to collect many deniers which, remitted to the treasury of the hospital, served to help the destitute blind. Valentin Haüy discovered at Saint-Germain-des-Prés, a young mendicant of 16 years, Francois Lesueur, whose intelligence was normal but who had been blind since he was 18 months old. It was not without difficulty that he persuaded the boy to follow him, for his livelihood was assured by good collections; but he finally yielded when Haüy promised him that if he gave up begging and would follow him, he would give him a daily sum equal to the alms he was in the habit of receiving. While disentangling the first ideas of his pupil, and teaching him to recognize, by the sense of touch, the shape of the letters in relief which he had fashioned, and with

which he taught him to compose sentences, Haüy studied the methods the blind had invented for themselves; among others, those peculiar to the blind at Puiseaux, and to Saunderson, who had been mentioned by Diderot, and had devised a calculating machine (a palpable arithmetic) at Cambridge, where he was professor of mathematics; but above all his attention was attracted to Mdlle. Paradis, a remarkable pianist, a Viennese by birth, who was then very popular in Paris where she had been since 1783. The large pin-cushions in the shape of quarto volumes, into which she stuck pins, served as a means of notation for the sonatas which were dictated to her; following this she learned them by heart by aid of her fingers. Her knowledge of geography was quite extensive; she owed this to one Weissenburg, a most ingenious blind man of Mannheim, who had made geographical charts in relief, of which the boundaries of the countries were indicated by silken chenille, the towns by pearls of various sizes, the oceans and seas by a highly polished glaze, and the earth's surfaces by a thin layer of grit-rock (sand). Mdlle. Paradis aroused a lively curiosity as Diderot's letter "On the Blind" (sur les Aveugles) was quoted in all the memoirs of that time. Valentin Haüy appropriating a part of each of these methods, developed them, and as much by experiment as by invention, created his own method. Such as this method is, it might appear to-day too decidedly primitive to warrant extensive notice, but though great improvements have since been made it nevertheless contained the germ, the growth and perfection of which is the most precious asset the blind have at present.

Haüy began by determining which character of letters presented the form most readily perceptible to the touch; he was not long in discarding the Roman alphabet on account of its being square and because confusion might arise from mistaking certain letters such as n, m, and u; he rejected italics because of their sloping toward the right and thereby having a likelihood to cause errors; and he finally adopted the straight writing which at that time was called French writing, and to which we owe the beautiful manuscripts of the seventeenth century. He had remarked that a proof made with a brush had on the back of the paper, the letters in a sufficiently accentuated relief, which reproduce in a reversed order the black letters of the right side. From this he evolved the idea to mould direct type—that is not the ordinary type with letters in reversed order, but with letters in direct order, so as to get on the back of a proof raised letters

which no longer would be reversed. The form was then placed on the press to be printed on thick paper, which had previously been made very moist and was covered with two or three thicknesses of felt, the better to achieve a distinct projection of all the letters. Haüy printed musical scores in the same manner. His ambition extended to the instructing of the blind in the art of writing; but here he was less successful. He invented a frame which contained a leaf of paper; a pliable ruler served as a support for the hand and an ink, thickened with gum tragacanth and sprinkled with finely ground sand-stone, was used. The blind wrote in a crooked fashion, the letters overriding each other, and it often happened that the person could not read them again. This was nothing but a *tour de force,* very interesting for observers but useless for the blind. Again the blind preferred movable letters which they could arrange on tables, the grooves of which served for the end of each letter

All these methods and inventions were practiced by Francois Lesueur, whose progress confirmed his master's theories. The period of feeling one's way was over; a new era was come; the public was interested as never before; and the blind profited by this interest. Through the influence of his brother, René, the Academy of Sciences consented to examine his pupil. Lesueur performed marvels; he could read, write and calculate. A commission composed of Desmarets, Demours, Vicq d'Azir and Larochefoucauld-Liancourt, as committee reporter, was instructed to estimate the memorial and methods presented by Valentin Haüy. The report was read on February 16, 1785. It was eulogistic in the extreme, contrasting the older with the newer methods to the detriment of the former, because they had not shaped themselves into something that was practicable, and it ended with the following peroration: "But until now, no one has attempted to gather these different methods, discuss them and form a method that is easy to acquire, and complete enough to facilitate the acquisition of knowledge by an unfortunate portion of humanity who are hampered by reason of the absence of an all-important sense. No longer will it be said that the unfortunate blind must be excluded from the society of other men." This, in fact, was what Valentin Haüy had accomplished, and it should suffice to assure his fame.

The public was aroused by the new discovery and the Philanthropic Society granted a pension amounting to 12 livres a month to each blind person who was selected to receive his education

from Valentin Haüy. He thereupon opened a school in rue Coquillièrs which soon became known throughout Paris. To the studies of grammar, geography and music, was added an apprenticeship in the lighter sort of work—knitting, spinning, rope-making, the making of esparto baskets and nets, upholstery, and even printing. Public exhibitions were given from time to time. Bachaumont in his "Memoirs," mentions the one of March 1, 1785, and quotes with approval the lines by Théveneau on the mutes and the blind: "In this century of ingenious inventions the eyes replace the ears and the touch replaces the eyes."

At this time the school consisted of 13 children, of whom 4 were girls. A year later the number was almost doubled, and soon Lenoir, lieutenant of police, spoke of this novel institution to de Vergennes, who was not long in apprizing the king of its value to the State. Louis XVI. expressed a desire to see the blind workers, and Haüy, only too eager to bring his methods before the king's notice, accepted the invitation with alacrity. In December, 1786, he took 24 pupils to Versailles; they were entertained for a fortnight and astonished everybody by their dexterity in illustrating Haüy's methods. But the hope conceived by Haüy that the king would take the school under his protection was never realized; it always remained in charge of the Philanthropic Society, even after larger quarters were acquired in rue Notre-Dame-des-Victoires. A printing establishment was now made part of the school, but this was soon abandoned because the expense of running it was greater than the receipts, one part only being retained, the room in which letters were stamped in relief.

The Revolution decided the fate of "the school for blind artisans" by placing it under the direction of the State. The law of July 21, 1791, declared that the institution be from now on a public establishment; a second law, enacted September 28, founded scholarships and subventioned Valentin Haüy. For a time the blind and the mutes were housed together in the monastery of the Célestines, but in 1794 they were installed in rue des Lombards. There they remained for some time. After 1800, in the first days of the Consulate, they were put back into the Quinze-Vingts, where they occupied quarters by themselves, the school becoming a hospital again. Valentin Haüy was an ambitious but not an aggressive man, and he desired a better fate for his pupils. This wish, put forth with considerable diffidence, if not timidity, was never realized. Bonaparte did not

fancy those whom he was in the habit of calling ideologists. Valentin Haüy was one of these; he had been a theophilanthropist; had worn the white robe and had marched behind the great revolutionary pontiff, Larevellière-Lépeaux, in the puerile ceremonies of which Notre Dame had been the scene during the Revolution. Haüy on account of his past indiscretions was suspected of opposition to the government or, as some critics have asserted, he was deemed unfit to manage an institution because of his lack of administrative ability. Whatever may have been the cause, his unpopularity proved a blow to all those ambitious blind who were eager to receive instruction. Haüy, having no other resources but his pension of 2,000 francs, opened a special school in rue Sainte-Avoye under the rather pretentious name of "Museum for the Blind"; but he contracted only debts, which aggravated altogether too much a condition of affairs already sadly crippled. So discouraged was he that, accompanied by one of his best pupils of the name of Fournier, he quitted France and went to Berlin where he founded a school which prospered. On his way to St. Petersburg he stopped at Mittau to pay his respects to the Count of Provence, afterwards Louis XVIII. This happened on September 7, 1806. Fournier, who was still with his master, gave illuminating illustrations of his methods, which apparently impressed the Count to so great an extent that Fournier was prompted shortly after to write the following prophetic sentence: "Will the time arrive when establishments for blind artisans will reach perfection?" Returning to France after the second Restoration, Valentin Haüy asked of the Duke of Richelieu the favor of being named honorary instructor for blind children. But this modest wish does not seem to have been realized. Afterwards he lived in extreme retirement with his brother at the Jardin des Plantes. Forgotten and neglected, his modesty developed into humility; and in an autographic letter, dated February 18, 1818, he writes: "I am not ignorant of what is said of me; yes, I am an old imbecile whose life was wasted." He lingered on for some years and finally died March 18, 1822.

Some four months ago the blind throughout the world celebrated the centenary of the birth of Louis Braille, who is always to them an object of deep veneration and profound gratitude. Blind himself from the age of three years, he became professor, in 1828, at the Royal Institution for Blind Children, where he himself had been one of the pupils. He dedicated all the thoughts of

his eventful life to one object—how most to ameliorate the lot of his unfortunate companions; and it is he who has given them the method of reading and writing which to-day is in vogue throughout the world. His memory is not less honored than is that of Valentin Haüy. If Valentin Haüy evolved the idea that the blind should be instructed, Louis Braille elaborated this idea until a discovery of the means which would permit this instruction to bear the best fruits, was effected. Their united efforts have transformed the life of the blind. Before their time only a small number of the blind, who were placed in fortunate circumstances, were able to develop their faculties; to-day the acquisition of moral and intellectual culture is almost universal among them; and the result is that they are useful entities in society. But in spite of this transformation, certain prejudices still attach to the condition of blindness on the part of those who have the faculty of sight, and therefore misjudge the possibility of any intellectual improvement in the blind. In nearly all minds the word blind evokes a pitiable and false image. The first thought that occurs to the uninitiated is that in the blind the faculties—intelligence, volition and sensation—are torpid and, as it were, stupified. Habituated to do nothing without the aid of sight they infer that a deprivation of this sense must mean a crippling, if not a complete cessation, of all activity. They cannot readily conceive that when there is a deprivation of the resources incident to sight, the blind in exchange get out of their other senses, resources neglected by those who are in the full enjoyment of all their senses. And they also forget that various benefactors have not only striven but succeeded in bridging the abyss that has hitherto existed between the blind and the unafflicted. But for the majority, a blind person remains a thing apart from the common life; not an integral part of it. The meeting with a blind person who is adroit and out-of-the-ordinary, often acts as a contradiction to this abstract idea, and the oftener the meetings recur the sooner there is a complete triumph over this preconception. What is necessary then is to associate with the blind a long time so as to arrive at the right point of view for judging them.

After all, when one thinks how different are their methods of acquiring knowledge from those of the normal person, it is not without some degree of effort that we can understand how the various faculties develop, hampered by the loss of what is considered the most important sense. Now though the idea of in-

equality between the two classes mentioned, is merely a psychological one, it should nevertheless be mentioned here; for the nourishing of this sort of an idea is inimical to the material progress of the blind, be they musicians or merely artisans. An attitude that is an encroachment on the livelihood of others ought surely to be deprecated.

Every one is aware that the blind can dress themselves, find their way about in places known to them, attend to certain household duties, and can apply themselves to certain occupations which it is hard to believe they are capable of performing. From a physical standpoint, the best equipped are not the equals of the unafflicted. But on the other hand as regards their status from an intellectual and moral point of view, it is well to declare at once that they are nearly the equals of other men. Some of us may not be inclined to believe this; but since it is more difficult to judge intellectual capacity than physical prowess, hasty conclusions should not be admissible. Again, because the intellectual life of to-day is so varied and complicated, it would seem at first blush as if darkness would necessarily preclude an acquiring of extensive knowledge.

The question is this, is sight necessary to the function of thought? And is not the integrity of the intelligence better preserved by being unmolested by the various diverting impressions the faculty of sight carries to the brain? There are very few ideas the blind cannot acquire, it has been said; therefore are we right or wrong in concluding that very few ideas come to us by way of seeing? Analyze a visual sensation: you will readily see that all its elements can be duplicated by the tactile sense. You look at an object on the table; the color strikes you at once. Here is a sensation unknown to a congenital blind; and no amount of feeling of all its surfaces by his fingers, though his touch be the most exquisite, will tell him the color is black. But all the rest—length, width, height, form of the ends, rigidity of the angles and edges, polish of the surfaces, place occupied on the table, distance between the object and the observer, are ideas given to him by his sense of touch. Does not this recall our elementary ideas of space, extension, and solidity for which we depend more on our sense of touch than on our sense of sight?

But for the blind, there are some objects too distant from them and of dimensions too considerable to be properly palpated. Now though this be true it should not be forgotten that the only

correct idea normal man receives through his sense of sight in which the blind are lacking, is that of color; all the rest is comprehended through the sense of touch. By multiplying the ideas of space and distance received by the touch from a small object, the idea of a vast object may shape itself in the mind of the blind as an exact image. Sight is the sense of touch with the addition of the sensation of colors; touch is close vision with all idea of color lacking, but with an elevated sense that can detect the slightest rugosity. Both senses give us information of the same sort. Those who see cannot embrace the earth by a single regard; but they construct their idea of it according to geometrical rules. In a like manner, the objects the blind cannot touch are made apparent to them by reading the reports always to be interpreted by means of their tactile langúage.

To reiterate, the blind are deprived of the idea of color; an elementary idea which no other sense can give; and no analogy can make plain to him who has never seen. The idea of light is in the same category. But all these ideas are of slight moment from an intellectual point of view; they are only descriptive of the superfices of objects; they enter in no way into the essential ideas of human thought—ideas of space, time, cause.

The blind are deprived of the sensations of pleasure and of pain derived from impressions of form and color perceived by the eye. Who has ever met one born blind, who can formulate a precise idea of the beauty of a landscape or the beauty of a statue? And here it is well to say that in this respect the blind are greatly lacking. Many emotions are denied them, but their loss is hardly an intellectual one. These emotions are not productive of clear and distinct ideas; they awaken only subjective impressions. When speaking of a blind artist the foregoing should not be forgotten; but when studying his intelligence it counts for very little.

As I have already pointed out, the sense of touch has been only methodically exploited for 125 years—that is to say, since 1784, when Valentin̆ Haüy founded the first special school; and it is this methodic utilization that has transformed the status of the blind and has permitted them to-day to assume an important rôle in society. The education of the sense of touch is the essential part of what may be called the special pedagogy of the blind. From time immemorial, it has been the sense of touch, which has alone given to the blind the ideas of form and of resistance, and out of which they constructed their conception of the outside

world. Since early times, and spontaneously and unwittingly, the sense of touch has encroached on the domain of sight, and brought to the mind of the blind a knowledge of objects which could not possibly be acquired by the natural and limited development of touch. The effort of the educator consists at first in developing systematically this natural tendency. In the beginning it is necessary to make the blind touch the largest number of objects possible, which are ordinarily known to the normal by the sense of sight—implements of all kinds. Objects of natural size are placed between his hands; in default of these, miniatures may be used and thus, instead of poor descriptions of an object, sometimes garbled and then again reduced to a few words, the concrete and precise image is substituted. These lessons derived from a knowledge of objects are particularly necessary for the blind child.

But the salient point in this pedagogy by the touch, is to substitute for the visual instrument, which generally serves for studies and transmission of thought, the tactile instrument. The plane geographical maps are replaced by maps in relief; geometrical figures are similarly drawn in relief. Of all the exercises, reading is the one which is of the greatest benefit to the intelligence; thus, reading by touch is the most important feature in the education of the blind. In the 125 years which have elapsed since Valentin Haüy contented himself by tracing in relief the characters of the ordinary alphabet, reading by touch has very much progressed. Haüy's characters were composed of lines which, though easily perceptible to the sight, were felt only slowly by the finger; thus reading and writing were such slow work that only slight service was rendered the blind. The idea then occurred to substitute for this, an altogether different system adapted to special conditions of the tactile sensibility. The line was succeeded by the point, which the finger perceived much more readily, and thus the system of Braille was evolved, in which each letter of the alphabet is represented by a number of points, the greatest number being six. Reading became easy, of course more difficult than by the eye, though rapid enough to be pleasantly adaptable to all grades of voices. But the printing of books was expensive and the demand insufficient to cover the outlay. Only the essential books—those which were thought necessary for the blind for their instruction—were printed. The benefits from reading by touch remained, in consequence, very limited. Greater progress was necessary; this was realized by the

founding of the Braille Library at Paris. The library contains manuscript works in the Braille type and while it has not been in existence longer than twenty years, it has already 25,000 volumes. These volumes are sent in all directions, to all those who desire to receive instruction. The Braille Library distributes also journals and reviews in relief, which are without doubt very concise; but the items are sufficient to inform the readers not only of all the news which should specially interest the blind, but also political, literary and artistic news that no one ought to be ignorant of. Thanks to this, one may say that an abundant intellectual nourishment has been placed at the door of all the blind who wish instruction. Formerly, when the blind had finished their scholastic course, they could not continue to read daily except by means of a reader. But there were very few who could afford this luxury. The result was that very little was read. To-day all that is necessary is to write to the Braille Library for books, and the order is immediately filled. On leaving school, the pupil is encouraged to keep up his acquired knowledge by enriching his mind through membership in the Library. A characteristic fact illustrating this point is this: The blind who are more than forty years old nearly all read very badly, while, on the other hand, those who are less than forty read very well; in other words, they belong to the generation which has benefited by the Braille Library. The former were read to, when they had the means; the latter may also indulge in this luxury, but at the same time they themselves read, and as a result their reading improves from year to year.

Intellectual distraction is above all welcomed by the blind. This can readily be understood. It is by the eye that the majority of mankind receives the greater part of its pleasures. Deprived of these pleasures, the blind demand other stimuli for their faculties. As a generalization it may be stated that the blind like to read; like it much more in a way than do the unafflicted of the same intellectual niveau.

This taste for reading, this need of distraction of the mind, constitutes an intellectual advantage of some moment for the blind, and favors their development. They are fortunately gifted with a good memory, and one knows the advantages resulting from this. One protection which the blind enjoy is that their infirmity places them beyond the reach of the daily paper. The substitution of the journal for the book, of the hastily-written article for the work a long time maturing, seems, in this epoch,

to be one of the obstacles to intellectual progress. The Braille periodicals are literary reviews much more so than are the daily papers, and the part devoted to the various items of news is very succinct.

A number of the blind have achieved a certain amount of notoriety on account of their intellectual advancement. Unfortunately, we are ignorant of the conditions in which they developed themselves, the means that they employed, and especially their psychology. Many have no greater significance for us than their bare names. Such are the ancient Greek and Roman, Diodotus, the stoic, and Aufidius, of whom Cicero makes mention in his "Tusculanæ disputationes." Didymus of Alexandria, who lived in the fourth century of our era, is a little better known. Towards the end of the Middle Ages there were some savants of remarkable memory: Nicaise of Malines, Fernand of Brûges, Pièrre Dupont of Paris. In regard to Ulrich Schomberg, we have as witness the German philosopher and mathematician, Leibnitz. "He has taught at Königsberg," says Leibnitz, "philosophy and mathematics to the admiration of the whole world." Although he had lost his sight at the age of two and a half years, he conserved no memory of light and colors; visual impressions therefore did not influence his intellectual formation. In the eighteenth century the Swiss, Francois Huber, owed some of his reputation to Voltaire, and, thanks to Diderot, the name of the Englishman, Nicholas Saunderson, is known to us. The first was a naturalist who is best known from his observations on the honey-bee, and it is well to remark here that having enjoyed sight up to the age of 15, he had completed the greater part of his education before he became blind; therefore, he was aided by his visual imagination. Saunderson, on the contrary, became blind in early infancy, but nevertheless developed into an adept in mathematical studies. Similar to Saunderson, who was professor at Cambridge, a number of the blind have been instructors and professors; Penjon, who at the beginning of the nineteenth century was professor of mathemathics at the Lyceum at Angers, being a case in point. The most recent intellectual feat to be recorded on the credit side of the ledger for the blind, is the recent publication in Paris of a work in three volumes, "The Sources and Evolution of Montaigne's Essays," by Pièrre Villey, which has been pronounced by some of the best critics the most learned book on the French essayist that has yet been written.

ON THE CURABILITY OF CATARACT WITHOUT INTERFERENCE. A CLINICAL STUDY.

By Bernard R. LeRoy, M.D.,
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To affirm positive knowledge that a person who had become blind from the maturity of cataracts, may have his sight restored to him by the resolving of the cataractous precipitate, through the action of a natural physiological solvent, that does its work kindly, rapidly and with a certainty that is most gratifying, is to say the least a startling declaration, especially when this work is accomplished without the aid of local treatment, or, of any local interference whatever.

The desire to make this information more widely known, in order to bring relief to a greater number of persons so afflicted, is the motive which prompts the writer to publish in part, the results of his research along these lines. It might be mentioned that this study was made at the Athens State Hospital for the Insane, located at this place, and that it is in part the outcome of continued research work with the idiopathic epilepsies, which the writer has followed for some years. This study has been along entirely original lines, and while pursuing these studies many strange phenomena presented, and at various times the endeavor has been made to understand these unknown conditions, and it was thus that the present study was made possible.

Almost at the beginning of these investigations the writer found that ammonia was the active primary cause or exciting factor in perhaps all diseased conditions.

It seemed probable, therefore, that if we should be able to control the output of ammonia within our bodies and thus prevent this substance from accumulating in the secretions beyond what is deemed the normal quantity, we could thereby prevent many of the diseased conditions from supervening and thus escape many of the dangers of ill-health and of premature death.

Ammonia is found in the normal saliva, the secretion most studied by the author of this paper; in very small quantities, that is from 0.0025 to 0.04 per cent.[1] When it is found in quantities approaching the latter figures we have found that the thiocyanates will have disappeared, and that the salts of calcium, magnesium and silicon have been precipitated from the saliva in the form of tartar. This takes place in an alkaline saliva and

is the only way by which these salts are precipitated from the saliva while that secretion is in the mouth during ordinary health.

After becoming convinced of these facts the writer entered upon the study of the solvent power of the thiocyanates. He found that solutions of from 1:40,000 to 1:100,000 of the thiocyanates of potassium in distilled water, at body temperature, would dissolve about four per cent. of the carbonates of calcium and magnesium.[2]

These solutions being approximately the strength of the thiocyanates found in normal saliva, the writer found reason to believe that with no thiocyanates in the saliva there could not be any of the salts of calcium, magnesium or of silicon taken up from the pabulum of the system, unless these salts were first acted upon by the thiocyanates in the saliva during the act of mastication. The resulting union of the thiocyanates with these almost insoluble minerals, changes the resulting combination into one which is very soluble and thereby assimilable. This fact was fully demonstrated in a case of chronic syphilis, with ulceration of the bones as well as of the soft parts. In this case the ammonia was in the saliva in excessive amount and an entire absence of the thiocyanates; precipitation of the earthy salts from the saliva was evident from the abundant formation of tartar on the teeth. This case made a rapid recovery when placed upon the thiocyanates, showing that the presence of these salts had much to do with the changed metabolism which was only too plainly evident.

He has also observed that when the system is deprived of its usual supply of the earthy salts, it endeavors to make up the deficiency through the action of certain phagocytic cells which rob the more solid parts of the system, thus producing many diseased conditions. It is evident therefore that ammonia is the natural enemy of health; that it causes the precipitation of these necessary salts; and that it should be watched, studied, and controlled as is no other chemical agent found in the body seems self-evident.

With these facts in mind the writer entered upon the study of those diseased conditions wherein the salts of calcium, magnesium and silicon are most concerned, namely, arteriosclerosis, chronic syphilis and certain general conditions found in cases of senility. A number of these cases were placed under treatment by the administration of the thiocyanates, with regulation of the bowels

and control of the dietary. These cases will be reported in the near future. The remarkable improvement noticed, especially in that the *arcus senilis,* in many of the cases, gradually faded away and almost disappeared, determined the writer to try this form of treatment in cases of simple cataract. The following was selected because the patient, aside from senility, was in fair health, and having a cataract in both eyes was quite an ideal case.

Case 1.—Amy P., seventy-two years of age, had had cataracts for over thirty-six years, the last ten years being spent in total blindness. The cataracts were of a chalky whiteness, that of the right eye being much more dense and pronounced in color. She had been bitten in that eye by a spider, when a child; to which misfortune she attributed her loss of sight. She was placed upon a regulated diet; her digestive tract was cleared and kept free and clean by the use of jalapa compound. As an index of the amount of ammonia and of the thiocyanates to be found within the system, the saliva, being a natural secretion, was made use of for this purpose. When examined it was found to contain an excessive amount of ammonia with entire absence of the thiocyanates, the ammonia approximating 0.04 per cent. There was an abundant precipitation of the salts of calcium, magnesium and silicon within the mouth, as shown by the tartar.

The sodium thiocyanate (Merck) was given her, this salt being the least poisonous of all the thiocyanates. It must however be administered with considerable care and watchfulness. At first it was given by the mouth in doses of one grain well diluted in water after each meal.

The changes noticed were an increase of the general feeling of bodily comfort, improved appetite, gain in bodily weight, freeness from headaches from which she had suffered, the pain being just back of the eyes; disappearance of the dizzy spells, with which she was often troubled. At this point an examination of the saliva showed that the ammonia had fallen to the normal content of 0.0025 per cent. and that the thiocyanates had returned and were present far above the normal, causing some trouble, which will be referred to later.

The tartar on her teeth, of which there was a thick accumulation, began to dissolve and loosen, dropping off in large casts, leaving the teeth quite tender and painful, causing her to believe they were breaking off. This was found to be one of the general results of this form of treatment in all cases under observation;

the tartar was either dissolved or loosened from the teeth in large scales as has been just described. Indeed this fact was made use of in providing cases with a five per cent. solution of the sodium thiocyanate to be used as a tooth-wash, which office it fulfilled in a highly pleasing manner. In this way aiding in the removal of the source of ammonia from the system. Her breath also had become much less offensive than before. Furthermore, the cataracts began to lose their chalky whiteness and to take on a more bluish color. When looking directly at the sun she could see its light. She described the vision as if she were looking through a flat bottle of milk. At times this white color was changed to one of greenish hue. She was as much delighted as a little child at this new discovery.

By the end of the fifth week she cried out that she could see the floor and that it was red, which was a fact. By the end of the seventh week, when out for exercise, she exclaimed with joyous voice, "Oh, I can see the tree tops, I can see the tree tops!" She repeated this to me subsequently when I went to her ward.

Briefly, her improvement has continued to advance steadily, kindly and with certainty towards a restoration of her normal sight.

At this point it was found that when the percentage of the thiocyanates are present in the body-fluids in excess of 0.02 per cent. as shown by the analysis of the saliva, we commence to run into new difficulties, the nose, the throat, and the mouth became very sore and painful although without ulceration. The lips were covered with small herpes, the head ached, the breath became very foul, there was a loss of appetite and general restlessness. This was also proven in other studies.

All these distressing symptoms quickly and kindly disappeared upon the withdrawal, or lessening of the dosage.

After the seventh week of treatment of this case as described, it was thought expedient to use the remedy hypodermatically, and to combine small-sized doses of the pilocapine hydrochlorate because we found that when the kidneys were acting freely we got better returns from the treatment. Besides, with the fact that we controlled her diet, regulated her bowels so that she was in as nearly normal condition as it was possible to place her, she was given nothing else in the way of medicine.

At this writing, April 15, 1909, the tenth week of treatment, the patient is able to see much more distinctly than before. The

lens of each eye has almost lost that chalky whiteness so characteristic of old cataracts, and is being replaced with a bluish tint which fades away from within, upwards and outwards to the normal color of the lens. The left eye seems to be improving much faster than the right. Its lens is much less infiltrated with the cataractous precipitate; one can almost imagine he sees the resolving of the fatty precipitates of calcium, magnesium and silicon. For the writer has found that the salts of these minerals were the chief salts in the ash of cataractous lens, although he had less than ten such lenses to study and that study was only qualitative in character.

It was found that by keeping the body free from the superabundant supply of ammonia, by regulating the diet and the bowels, and by the use of the scrub bath[3] the amount of ammonia could be greatly reduced. I call attention at this point to the manner in which the thiocyanates must be caused to appear in the saliva, somewhat in excess of the normal content, before salutary results are obtained, yet the amount must be well guarded, for a quantity that is too far in excess of the normal content will cause untoward symptoms and perhaps death, for the thiocyanates are very active poisons when administered carelessly. Notice, however, that by normal saliva I do not mean ordinary saliva; the former may be studied in a young, rapidly growing, healthy girl.

The thiocyanates will be found to be between 0.0025 and 0.04 per cent. or to react with a bright blood-red color.[1, 7]

In cases where the hypodermatic medication would be objected to, the thiocyanates may be given by the mouth in doses of one grain, or less, well diluted in distilled water sweetened to taste; after each meal. This method of administration will of necessity require a greater length of time to produce equal effects.

After the giving of the thiocyanates, they may be detected in the saliva within a few minutes, and persist for some time, they being detected after ten days had elapsed from the time of giving a single dose.

This treatment is now being given to a number of persons who are blind or nearly so. In every case the reactions described together with the evidence of returning sight are prominent characteristics.

Case 2.—(Private case)—Young man, aged 29, coal miner; cataracts in both eyes; has been totally blind for two years. Here the same methods were followed, the same precautions taken as in case one, and similarly the treatment was the same.

During the third week of treatment, this young man could see the dark shadow of my arm, when he was facing the window, as I passed it to and fro between the window and his eyes. After the fifth treatment he could not only see much more distinctly, but could distinguish between my hand and a book, or between a book and my hat, when held in my hand and passed slowly between his eyes and the sunlight, although he was standing fully eight feet back from the window and over five feet from the operator.*

The other cases are making the same progress; there would therefore be nothing gained by recounting them in detail, except to describe certain symptoms that have been noticed in all the cases under treatment.

Case 3—(Private).—Aged 67, cataract in both eyes; in right eye the cataract was of the diffused nuclear form, while in the left eye it assumed the fusiform variety, the bars almost destroyed the sight of this eye. One quarter of a grain of the Sodium Thiocyanate (Merck) was given well diluted in water after each meal, at the end of the tenth week there is practically no evidence of the cataracts, the bars steadily melted away until they became transparent and she could look through them, then they became ragged edged and at last faded away until they do not interfere in the least with the field of vision. Soon after taking the medicine there will be noticed a discharge of thick gummy mucus from the eyes, having a very offensive odor. This is so very offensive, even to the patients themselves, that for a time they unwillingly become quite a nuisance because of this odor.

Case 4—(Private).—Male, 60, suffering from glaucoma, advanced case has been under treatment for some years under well known specialists of Ohio. Was given treatment as in Case 3.

Results of four weeks treatment. The pain and pressure disappeared leaving the patient free from these troublesome symp-

*Note.—To-day, May 3, 1909, this patient can see with increasing distinctness. He tells me that in the evening, after the lamp has been lighted, he can, by placing his back towards the light, and by looking towards the wall of the room, locate the door, or windows, thus being able to go around the house at night without aid. This he has not been able to do since he became blind. He also told me that he was able to walk out to the road and find the mail box, this morning; the sunlight being directly at his back, he being able to find his way because of the darker shadow of the vegetation, along side of the dirt path, than the path itself; but when he turned to go towards the house, the sun shining into his face, he could not distinguish the shadows at all, he seemingly being brought up face to face with a milky colored glass wall.

toms. The mucus discharge, as noted in all the other cases, became very abundant, being extremely offensive in odor, perhaps being worse in this respect than any of the other cases. The vision of the patient is not materially improved, nor is the field of vision enlarged, but, the general improvement of the patient is so noticeable, the clearing of the countenance, the passing away of that pinched or drawn look, with improvement in the vital actions of every organ goes to show that under the treatment there is going on within the system a decided change that will eventually end in the well being of the patient if not in decided improvement in the diseased eyes.

Now, I ask my readers, before rushing into print with an attack upon me, to try this form of treatment in cataractous cases, being careful not to overdo the good act. Examine the saliva every day. Make daily use of the sphygmomanometer, of approved type, until you have mastered the study of arterial blood-pressure. This is of vital importance, for you must so regulate each case as to keep the blood-pressure as nearly normal as possible. Do not try to rush your cases: there is danger in this. Never give large doses of sodium thiocyanate, for while it is not so poisonous as the other thiocyanates, it is a very active poison when handled carelessly.

Now let me try to explain the action that takes place within the body. But it may be well, in passing, to speak of the physiological antagonism between the thiocyanates and the salts of iodine, first mentioned by Pauli.[4] When the iodides are present in the system in large quantities they will cause the thiocyanates to disappear from the secretions, there being a certain ratio of antagonistic action between these two salts; the one that is more abundant will drive the other from the system.

The action of the thiocyanates must be through their chemical union with the colloids as stated by Pauli. We will leave it to others to determine the exact chemical union and the route taken while leaving or entering the body. This much we do know that between the colloids and the electrolytes[5] which gradually merge into one another there stand the so-called half colloids which are diffusible, in which form they are eliminated from the body. It will be readily seen that upon the union of an ion with colloids, as is the case with the thiocyanates when united with the saliva, in either a close or loose chemical combination, the resulting physical nature of the colloids depends.

When the ion forms an end equation of a close chemical union, the colloid is physically changed from a Sol towards a

Gel, or, precipitate, depending upon the chemical union and also upon the fact whether a partial or complete precipitation of the colloids takes place, or whether this action operates in the reverse direction, from a Gel, that is precipitate, towards a Sol or solution,[6] as is the case in the therapeutical action of the thiocyanates in the study here reported.

As the chemical action works both ways in this change of equation, the half-colloids may be formed, and while in this condition may be eliminated from the body, or made further use of in the economy. This is undoubtedly what takes place within the system in the cases just described; for it is also in the form of the half-colloids that we obtain our nourishment—that is the pabulum is a liquid colloid made so by chemical action of the ions during the act of mastication and of digestion. As they are thus absorbed, why are they not thus eliminated?

Pauli has shown that there exist physiological effects which are attributable solely to the action of the ion. The vital property of the ion is to keep in solution the widely distributed globulins, which cannot be replaced by any other kind of dissolved crystalloids; since the non-ionised crystalloids are effective at no concentration. However, in the case of the cataract, we watched the slow but certain solution of the fatty precipitate of calcium and magnesium which forms the cataract opacity. The chalky whiteness first changed towards a paler color, then to a bluish white, then the upper and outer edges of the lens became clearer and of a more natural color.

At this period the patient said there was something like a curtain before her eyes and that with the left eye she had to look around the outer edge of it in order to see.

From indications it seems that the solution of the cataractous precipitate will resolve in reverse manner from that in which it was formed.

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MEDICAL SOCIETIES.

OPHTHALMIC SECTION
ST. LOUIS MEDICAL SOCIETY.

Meeting, Wednesday, January 13, 1909.
Chairman, Dr. A. E. Ewing, presiding.

Parinaud's Conjunctivtis.—By Dr. Carl Barck. Presentation of case.—(Omitted in the report published in the April number.)

The patient, a boy of 12 years, consulted Dr. Barck, December 21, 1908, saying that one year previous he had had some soreness and discharge from the left eye, with swelling of the upper lid and some swelling in front of the left ear.

When first seen by Dr. Barck there was a muco-purulent discharge, conjunctiva of lower lid slightly injected, conjunctiva of upper enormously swollen and infiltrated, particularly the fold of transmission. There was a large excrescence in the center of the conjunctiva of the upper lid, the size of a small pea with a yellowish white ulcer in the center. On the nasal half of the same conjunctiva were three yellowish gray infiltrates of pin-head size with two smaller spots on the temporal half. The pre-auricular gland was enlarged, being one-half inch in diameter. The two cervical glands, also enlarged, were smaller. Inquiry was made as to the association of the boy with animals, because of the belief that this disease is transmitted from domestic animals, especially cattle. The patient had been in contact with no animals except a goat which had no abnormal conditions of the eyes. Under general anæsthesia, one of the infiltrated follicles was removed and examined, and the excrescences and all infiltrates were expressed with Noyes' forceps. The specific organism of the disease which is supposed to exist, has so far not been classified. In this case, the follicle excised was subjected to microscopical examination, and a number of smears made and examined, all with negative results. Four rabbits' eyes and one cornea were also inoculated, with negative results.

Meeting of Wednesday, February 10th, 1909.

Chairman Dr. A. Alt, presiding.

THE TECHNIQUE OF LOCALIZING FOREIGN BODIES IN THE EYE AND ORBIT BY THE X-RAY.

By Dr. R. D. Carman.

Dr. Carman, in localizing foreign bodies in the eye and orbit, uses the method of Dr. Sweet, of Philadelphia, as modified by Dr. Bowen, of Columbus, in conjunction with the Weeks-Dixon Chart. The localizing instrument, together with localizing stand and clamp for the head, tunnel and plate carrier, are made by Kelly-Koett Manufacturing Company. The tunnel and plate carrier of this instrument enables one to make two exposures on one plate without disturbing the patient or the localizing instrument. Two pictures are taken in slightly different planes and from the shadows of the ball and cone, used as indicators whose positions are known, measurements to the foreign bodies are made and recorded upon a chart by which the position of the latter is graphically shown at once, without any intricate mathematical calculation. The technique of the operation is as follows:

The patient is required to lie upon the regular compression diaphragm table, the head resting on the localizing stand with the affected eye next to the plate, clamped and steadied with sand bags to prevent motion. The visual axis of the eye should be parallel to the plane of the plate and fixed on some object. For this purpose a candle is employed at a distance of 15 feet and an inch or two above the level of the localizing stand. By this means the visual axes are rendered approximately parallel to the plate. With the patient in position, and the eyes fixed, the indicators are adjusted. The indicator is set and the ball placed in the center of the cornea so as to indicate the visual axis of the eye-ball. The patient is then asked to close the eyes and the ball pushed into the lid about the lid's thickness and the trigger released, when the ball drops back 10 mm. The patient is then instructed to open the eyes again and look steadily at the candle. In this position the first exposure is made with the ray perpendicular to the plate and parallel to the indicators. The tube is then shifted toward the patient's feet, four or five inches and tilted slightly. The plate is changed and without moving the ball

and cone, another exposure is made. Measurements are made as follows:

Upon the first negative a line is drawn in the axis of the rod and ball which are here superposed, and the visual axis of the eye is at once established. A line is also drawn perpendicular to this and through the center of the foreign body's shadow. With a millimeter rule is measured the distance of the foreign body above or below the visual axis and said distance in millimeters laid off upon the front view in the chart either above or below the center of the cornea, and above or below the point representing the position of the cone. A line is drawn through these indicated points on the chart.

Likewise upon the second negative, lines are drawn through the axis of the ball and the axis of the cone and one perpendicular to these through the foreign body. Then with the millimeter rule the distance of the foreign body above or below the prolonged axis is measured. These distances are also recorded upon the front view in the chart at the proper point and a line is drawn through these points. The intersection of this line with that made from the first negative, will represent the location of the foreign body as viewed from the front.

Again upon the first negative the distance of the foreign body from the anterior surface of the cornea is determined by measuring from the ball along its axis to the perpendicular through the foreign body and deducting 10 mm. for the rebound of the ball when the trigger is released. Upon the chart, a line is drawn from the point of intersection in the front view, parallel to the line going through the center of the cornea, into the horizontal section, and the distance from the front of the cornea measured and indicated. In a like manner, a line is drawn from the point of intersection in the front view, parallel to the chart line going through the center of the cornea, into the side view, and the distance measured back from the center of the cornea.

In making the lines, the measurements upon the negative charts, extreme accuracy should be sought for, since an error of only a millimeter in measurement may lead to a more considerable error in fixing the location of the foreign body.

THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, March 11th, 1909.
Mr. W. H. H. Jessop, Vice-President, in the chair.

CARD SPECIMENS.

A Post-mortem Specimen Illustrating Oxycephaly.—Dr. George Carpenter.

The skull of an infant, 8 weeks old, had been split vertically in the middle line, showing brain and spinal cord in situ; the latter on one side was intact, but on the other could be seen a hæmorrhage which had been the immediate cause of death. Viewed from the front the face and skull together appeared diamond shaped, and the side view showed flattening antero-posteriorly. The orbital cavities were very shallow, and elongated in the vertical diameter, their margins being egg-shaped and set slightly obliquely. The brain was bent upon itself so that the frontal and occipital lobes were only about 1½ in. apart.

The eyes during life, were prominent and readily dislocated, and there were no fundus changes. Other deformities were also present, viz.:—6 toes on each foot, and the middle and third finger on each hand were webbed; there was also a ventral hernia above the umbilicus, and one at the umbilicus. Two sisters (since dead) were shown 8 years ago at a meeting of the Society for Diseases of Children (vide Reports, vol. i. p. 110); they had malformed skulls and other deformities of the fingers and toes. The parents were healthy and the third child, 7 years old, was quite normal, while the other children (5 in number) were all affected.

Stereoscopic Color Photographs (Lumière Process) of Eye Conditions.—Dr. J. Rowan.

Numerous conditions of the eye were depicted by this method, amongst them being lid conditions, glioma of the retina, etc.

A New Form of Lantern for the Detection of Defects of Color Vision.—Dr. F. W. Edridge-Green.

By means of a mechanical device the changes of color and luminosity of the test lamp were much more conveniently effected than in the old form.

Unilateral Optic Neuritis with White Spots in the Retina.—Mr. J. Herbert Parsons.

Rosa A., 16, came on January 30th, 1909, complaining of sudden loss of sight in the left eye, noticed one week previously. She had not been well for some time, and had been treated for anæmia. In her childhood she had had measles, scarlet fever, and anæmia; no rheumatism, no nasal discharge, and no history of tubercle. R. V. 6/6. L. V. hand movements.

The edge of the left disc was found to be blurred, and there was 3D of swelling, the œdema extending into the surrounding retina involving the macula. The veins were somewhat tortuous and dilated, and were constricted where crossed by the arteries. A few small streaky hæmorrhages were seen on the nasal side and below. In a week's time some white spots appeared in the macula forming an incomplete star-shaped figure. Nothing abnormal was found in the urine.

A blood examination showed diminution in the number of erythrocytes and relative increase of white corpuscles.

In another week some whitish, sharply defined spots round the disc, while those at the macula remained the same.

The neuritis gradually subsided under treatment, so that on March 11th all swelling had disappeared, but extending below the disc for about 1½ P.D. was a whitish patch obscuring the lower vessels and taling off along the temporal artery. The imperfect macula star was still present, and around the disc numerous white spots about twice the diameter of a retinal vessel were seen, which were of a duller color than those around the fovea. In the extreme periphery below were innumerable small, white, well-defined bright shining spots.

Mr. Parsons discussed the diagnosis and put forward the suggestion of a partial thrombotic retinitis of septic origin, perhaps similar to the retinitis septica described by Roth in his paper published in 1872.

The Chairman suggested a tubercular cause.

Mr. Nettleship thought the spots in the neighborhood of the disc were deeply situated in the retina, and perhaps choroidal in origin, while those at the macula were undoubtedly retinal.

Optic Atrophy (Retro-Bulbar) with Cerebellar Symptoms in a Child.—Mr. M. S. Mayou and Dr. L. Guthrie.

A male child, aged 9, came under observation on January 14th, 1908, with loss of sight, headache, and unsteadiness of the limbs. The child had suffered from several of the exanthemata, and

there was a suspicion of specific history in the family. Three months ago constant frontal headache began, but there was no vomiting. The day before admission the right eye "became suddenly blind," and later in the day the sight in the left began to fail. On admission there was no P.L. in the left, and with the right counting fingers was hardly possible. The left pupil was almost inactive to light, and the right was sluggish, while both discs showed palor, mostly affecting the macular bundle.

The general examination showed well marked spasticity of the lower limbs, with great exaggeration of knee jerks, and both knee and ankle clonus. Babinski's sign was not present, nor was there any alteration of sensation. The gait was staggering with a strong tendency to fall to the left, but there was no Rombergism.

The child gradually improved in the hospital, and the tendency to fall to the left, though still present, showed signs of diminishing. The vision recovered only to counting fingers at 6 ft. in both eyes, both discs were atrophic, and there was a large central scotoma.

Dr. Batten thought the symptoms pointed to internal hydrocephalus.

? Solitary Tubercle of the Iris in both Eyes.—Mr. W. H. H. Jessop.

A female patient had erythema nodosum, then facial paralysis, and following this iritis in both eyes. This quieted down, and 3 days ago she returned exhibiting the present condition. The vision was 6/9 in one eye and 6/6 in the other; there was K.P. of the mutton-fat type, and several whitish nodules could be seen in both irides, situated at the periphery.

Mr. Nettleship described similar cases, and threw out the suggestion that some of these chronic inflammatory cases might be caused by some hitherto unrecognized condition other than syphilis or tubercle.

Mr. Doyne considered that the fact of the nodules being present in both eyes pointed to a syphilitic origin rather than a tubercular.

PAPERS.

Congenital Anterior Staphyloma.—Mr. E. Treacher Collins.

A child, aged one month, was brought for treatment on August 14th, 1907, with the right eye unduly prominent, a condition which had been noticed immediately after birth. There was nothing in the history of the confinement likely to account for the appearance.

The right cornea was found to be opaque, vascular, and staphylomatous, the greatest density being in the central region; the lids were incapable of closing over the projection. The iris appeared to be in contact with the back of the cornea throughout. There was also a slight haziness in the left cornea. During the next 14 months the prominence of the right cornea increased, and on October 14th, 1908, it was decided to eviscerate the eye, the anterior part, containing the cornea, part of the ciliary body, and lens, being preserved for examination purposes. The macroscopical appearance bore out what was seen clinically; the lens was clear, except at the anterior pole, where a conical projection was visible.

By microscopical examination the following points could be observed: the epithelium was thickened and in places horny; there was irregularity of the layers of fibrous tissue composing the cornea, with some increase in the cellular elements; absence of Bowman's membrane, Descemet's membrane, endothelium, and the ligamentum pectinatum; posterior surface of the cornea lined by a double layer of pigment epithelium, with a gap corresponding to the pupil, eccentrically placed; between this layer and the posterior surface of the cornea scattered collections of spindle-shaped cells representing the remains of iris tissue; evidences of dislocation forward of the uvea, commonly met with in congenital staphyloma.

After showing lantern slides illustrating the above points by means of sections, Mr. Collins discussed the subject in the light of similar cases described by others. He referred to those of Parsons (*Trans. of Oph. Soc.*, vol. xxiv, p. 47) and Coats (*Trans. of Oph. Soc.*, vol. xxvi, p. 36), as well as to a paper in *The Ophthalmalmoscope,* vol. iv, p. 214, by Sidney Stephenson and Rosa Ford. He sought to show that the views generally expressed regarding prenatal ulceration and perforation were not borne out by the microscopical findings nor were they consistent with the length of time usually necessary for formation of a staphyloma in ordinary postnatal inflammatory perforation. Mr. Collins held that the abnormality was due to failure of development, a view which was supported by the frequent presence of associated deformities in other parts, as well as the occasional appearance of a mass of dermoid tissue in front of the staphyloma, to which the thickened horny epithelium noticed in the present case was somewhat allied.

He held that the absence of Descemet's membrane was decidedly against an inflammatory theory, since in postnatal perfora-

tion some parts of it were invariably preserved. He thought that the entire phenomenon could be explained by atypical development of the meso-blastic tissue which insinuates itself between the lens and the surface epiblast; this fails to become differentiated into its three parts, viz.: an anterior non-vascular layer, a hyaline membrane, and a posterior vascular layer.

In conclusion, a summary was given of the different malformations which may arise from aberrations in development of this particular part of the mesoblast, with references to the literature on this point.

Mr. Parsons said that although he considered the inflammatory theory the more probable one, yet he did not exclude the possibility of arrested development as a result of such a process taking place in utero.

Mr. Coats thought that the displacement forward of the uvea could not be satisfactorily accounted for on Mr. Collins's theory, as the parts involved were all well formed and did not show any lack of differentiation. He mentioned the striking fact, noticed in his own case, of the presence of lens matter in the corneal tissue; and he also questioned the formation of dermoid tissue from mere exposure.

In reply, Mr. Collins remarked that he felt no arguments had at present been put forward which negatived his theory of arrest of development.

Some New Pedigrees of Eye Disease.—Mr. Nettleship.

Mr. Nettleship contributed seven new pedigrees of different varieties of hereditary cataract, in each case containing four generations.

(1) Lamellar cataract; twenty-four members were affected in the four generations, six being in one family. In some the defect was associated with a goitre, and in others with congenital ptosis. Two of the patients had been operated on (optical iridectomy) with considerable benefit, and three others needled, but the subsequent history of these was not obtainable.

(2) and (3) Coralliform cataract, of which there were twenty-two affected in one genealogy and five in the other; there was only one consanguineous marriage in one family, and no other defects or degeneracies were found in either.

The other four were generations in which senile and presenile cataract showed itself, some of them illustrating the phenomena of anticipation. In one family there was an element of insanity.

A very thorough description of each case, where examination had been possible, accompanied this paper.

On So-called Temporary Artificial Color-blindness.—Dr. F. W. Edridge-Green and Mr. C. Devereux Marshall.

The authors of this paper conducted experiments to test the value of the conclusions arrived at by Professor Birch and published in the Philosophical Transactions of the Royal Society for 1898. This observer used a beam of sunlight from a heliostat, decomposed it by prisms and concentrated each color on his eye by a lens of 3 in. focus. He found that by continued exposure of the eye to light of one color all direct sensation of the color used was for a time abolished. His most important observation was that fatigue of the retina by yellow light produced partial blindness for red and green, a fact which gave strong support to the Young-Helmholtz theory of color vision.

Dr. Edridge-Green and Mr. Devereux Marshall criticized Professor Burch's method of producing fatigue as too violent and dangerous. They exposed themselves to the pure yellow light of a sodium flame for periods of 3 to 15 minutes and the results of their investigations differed in many respects from those of Professor Burch and tended to show that the psycho-physical theory of color vision of Dr. Edridge-Green was upheld, while neither Young-Helmholtz theory nor that of Hering would account for the phenomena.

MALCOLM L. HEPBURN.

REVIEWS.

ATLAS OF THE EXTERNAL DISEASES OF THE EYE, including a brief Treatise of the Pathology and Treatment. By Prof. Dr. O. Haab. Third Edition, revised. Edited by G. E. De Schweinitz, A.M., M.D. With 101 colored illustrations and 46 plates. W. B. Saunders Co., Philadelphia and London. 1909.

ATLAS AND EPITOME OF OPHTHALMOLOGY AND OPHTHALMOSCOPIC DIAGNOSIS. By Prof. Dr. O. Haab. Second American Edition from the fifth enlarged and revised German edition. Edited by G. E. De Schweinitz, A.M., M.D. With 152 colored illustrations. W. B. Saunders Co., Philadelphia and London. 1909.

We congratulate the author and editor of these two invaluable works at their reappearance in new editions. The illustrations are of such superior merit and the text of such excellence that no teacher and no student of ophthalmology should be without them. The more recent additions are such that they enhance the previously generally acknowledged usefulness of these books still more.

ALT.

AN EXPLANATION BY DR. M. H. POST.

Philadelphia, Pa., 10th May, 1909.

Dear Dr. Post:

My attention has been called in this month's number of *The Ophthalmoscope* to the fact that you have made the following statement in your article upon "A Successful Operation on a Cataract Complicated by a Dacrocystitis";* that you were "very much surprised to find nothing said about this complication in such standard text-books as Noyes, Fuchs, Norris and Oliver, Schmidt-Rimpler, Meyer and some others."

I have this day informed the editor of *The Ophthalmoscope* that on page 432 in the text-book of "Norris and Oliver" in the chapter on "Cataract" is the following injunction in regard to operations upon cataract: "No cases with lacrimal obstruction should be operated on till an attempt has been made to cure the disease by the means recommended in the chapter on the subject, because such a patient is very likely to have infection of the wound by pus regurgitating into the eye from the lacrimal canals."

I shall be grateful if you will see that this is corrected, as it seems but just to the memory of Dr. Norris and to the value of the book.

Very truly,

CHARLES A. OLIVER.

St. Louis, May 16, 1909.

My Dear Dr. Alt:

I see from the note in *The Ophthalmoscope,* to which Dr. Oliver refers, that I said what I had no intention of saying. It illustrates what a different impression may be made by words in print from that which they make when spoken.

I was not discussing the dangers of dacryocystitis in cataract operations, for all operators know them; but the especial methods of meeting this complication. It was for such methods that I had examined the books mentioned. I am sure that none of those who heard me misunderstood me.

I had not consulted the book which Dr. Oliver refers to, but the four-volume work edited by Drs. Norris and Oliver.

I should be very sorry to have what I have said reflect unjustly on Dr. Norris or Dr. Oliver, or on any of the authors of the other books referred to. Very truly yours,

M. H. POST.

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*Am. Jour. of Ophthalmology, December, 1908.